

100W, 165~265VAC Input, AC/DC capacitor charging module power supply



RoHS

FEATURES

- With charging function, the output ultra-capacitor can be charged
- Industrial grade operating temperature: -40°C to 75°C
- High isolation voltage: 3000VAC
- Output Voltage continuously adjustable
- Chassis mounting
- MTBF>100,000 H

MCP100—100W converter offered by Mornsun. It features high reliability and high isolation voltage, continuously adjustable output voltage. They are widely used in power permanent-magnet switch controller, Electricity network cabinet and other electrical equipment. They can be used as uninterruptible power supply with ultra capacitor.

Selection Guide

Part No.	Output Power	Nominal Output Voltage and Current		Efficiency(230VAC, %/Typ.)	Max. Capacitive Load(uF)
		(Vo1/Io1)	(Voc/Ioc)		Vo1
MCP100-2A27D27	100W	27V/1.5A	27V/3A	85	3000

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Rang	AC input	165	230	265	VAC
	DC input	200	310	375	VDC
Input frequency		40	50	60	Hz
Input current	230VAC	--	--	1600	mA
Inrush current	230VAC	--	50	--	A
Recommended External Input Fuse		3.15A, slow fusing			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Regulation Range	Vo1	24	27	28	VDC
	Voc	24	27	28	
Line Regulation	Vo1	--	±1	--	%
Load Regulation	Vo1	--	±3	--	
Output Current Accuracy*	Voc	--	±3	--	
Output Ripple & Noise**	Vo1 20MHz bandwidth (peak-peak value)	--	100	--	mV
Charging Capacitor Capacity	Voc	--	--	10	F
Short Circuit Protection		Continuous, self-recovery			
Over-voltage Protection		Feedback clamp limiting			

Note: *When the voltage on Voc is between 0V and the rated output voltage (24~28V adjustable), the Voc works in constant current mode, and it was constant voltage mode after the voltage reaches the rated output voltage;

**Ripple and noise tested with "parallel cable" method, please see *AC-DC Converter Application Notes* for specific operation methods.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output	3000	--	--	VAC
Operating Temperature		-40	--	+75	°C
Storage Temperature		-40	--	+105	
Storage Humidity		--	--	95	%RH
Power Derating	+55°C~+75°C	3.25	--	--	%/°C
Hot Plug	Unavailable				
MTBF	MIL-HDBK-217F@25°C > 100,000 h				

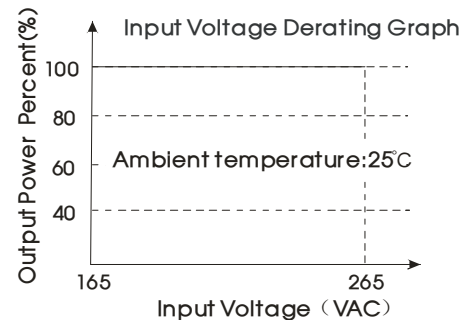
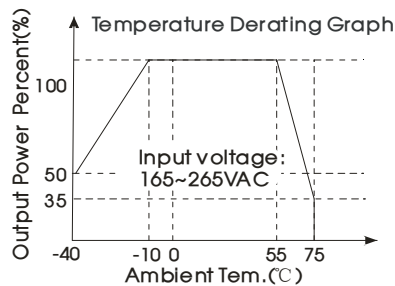
Physical Specifications

Casing Material	Metal
Package Dimensions	168.0*79.0*28.0 mm
Weight	400g(Typ.)
Cooling method	Free air convection

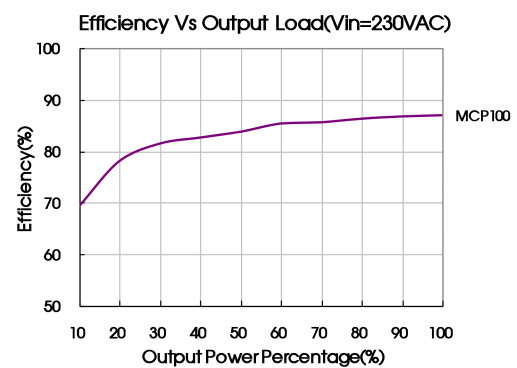
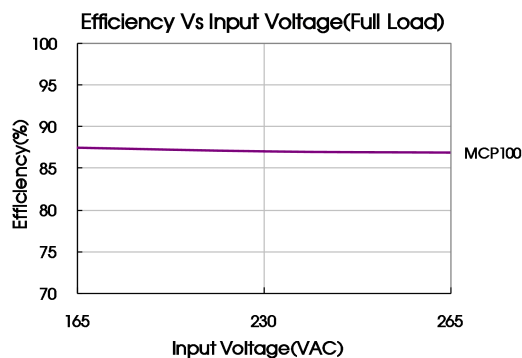
EMC Specifications

EMI	Conducted Disturbance	CISPR22/EN55022, CLASS A	
	Radiated Emission	CISPR22/EN55022, CLASS A	
EMS	Electrostatic Discharge	IEC/EN61000-4-2	±4KV Perf. Criteria B
	Radiation Immunity	IEC/EN61000-4-3	10V/m perf. Criteria A
	EFT	IEC/EN61000-4-4	±4KV perf. Criteria B
EMS	Surge Immunity	IEC/EN61000-4-5	±2KV/±4KV perf. Criteria B
		IEC/EN61000-4-5	±4KV/±6KV (Increase filter the front end, recommend FC-LX1D2) perf. Criteria B
	Conducted Disturbance immunity	IEC/EN61000-4-6	10 Vr.m.s perf. Criteria A
	Immunity for Power frequency magnetic field	IEC/EN61000-4-8	10A/m perf. Criteria A
	Immunities of voltage dip, drop and short interruption	IEC/EN61000-4-11	0%-70% perf. Criteria B

Product Characteristic Curve



Note: This product is suitable for use in natural air cooling environments, if in a closed environment, please contact our company's FAE.



Design Reference

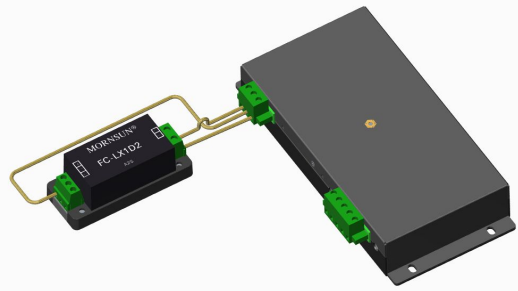


Fig1. Typical application circuit

1. Application specification

(1) The K terminal is a warning terminal. When the AC input is normal, The K terminal is a high level to -Vo1, which is greater than 23V. When the AC input fails, The K terminal is a low level to -Vo1, which is less than 5V. The K terminal can not be used as a load output terminal.

(2) To avoid any danger, the output super capacitance can not reverse.

(3) Before connecting the capacitor to the power supply, need to make sure the capacitor is not pre-charged in case of damaging the power supply, If the circuit is well connected and the capacitor is charged, short circuit is prohibited.

(4) The module can only used as a uninterruptible power source, do not use under continuous nor frequent charging-discharging conditions. IF it must work under those conditions, please make sure the interval between two charging operations is not less than 60 seconds. When the operating temperature exceeds +55℃, the power derating must be under consideration.

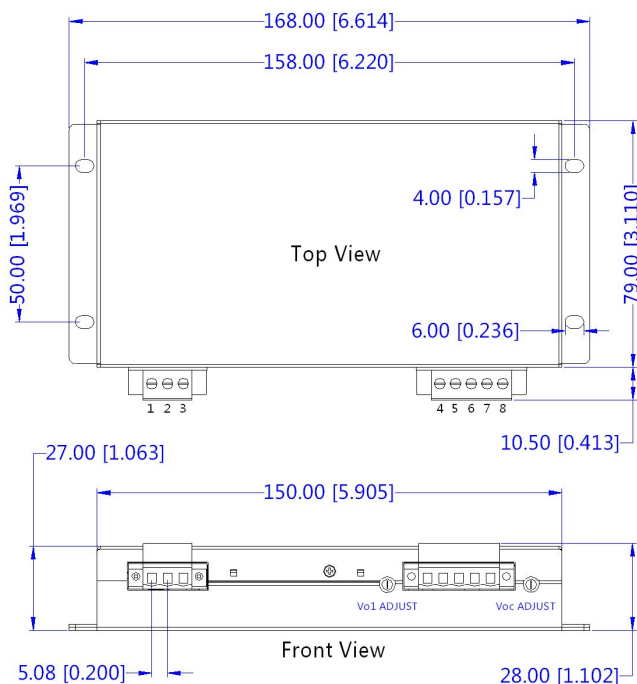
(5) The output regulation terminal can see the Dimensions and Recommended Layout, counterclockwise regulating output voltage rise; when regulating the output voltage, please limit the voltage to ensure that the output voltage Vo1 is slightly higher than Voc, and it is better to ensure this while Vo1 is under full load condition.

(6) If the power supply wiring is long (more than 20cm), the need to increase filtering and protective measures at the corresponding PCB board, For details, please contact our company's FAE.

2. For more information please find the application notes on www.mornsun-power.com

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



Pin-Out	
Pin	Function
1	AC(L)
2	⏏
3	AC(N)
4	K
5	+Vo1
6	-Vo1
7	-Voc
8	+Voc

Note:
Unit:mm[inch]
General tolerances:±1.00[±0.040]
Wire range:28~12AWG

Note:

1. Packing Information please refer to 'Product Packing Information'. Packing bag number: 58020022;
2. Unless otherwise specified, data in this datasheet should be tested under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75% when inputting nominal voltage and outputting rated load;
3. All index testing methods in this datasheet are based on our Company's corporate standards;
4. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technician for specific information;
5. We can provide product customization service;
6. Specifications of this product are subject to changes without prior notice.

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